

## Neuroscience Seminar Series

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**Friday, June 23<sup>th</sup>, 2017 at 11:30**

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

**Andrea Volterra**

*Professor, PhD*

*University of Lausanne, Switzerland*

### *Three-dimensional Ca<sup>2+</sup> imaging of astrocytes and astrocyte-synapse interactions*

*Astrocyte communication is typically studied by two-dimensional Ca<sup>2+</sup> imaging, but this method has not yielded conclusive data on the role of astrocytes in synaptic and vascular function. We developed a three-dimensional two-photon imaging approach and studied Ca<sup>2+</sup> dynamics in entire astrocyte volumes, including during axon-astrocyte interactions. Results indicate that Ca<sup>2+</sup> activity in an individual astrocyte is scattered throughout the cell, largely compartmented between regions, preponderantly local within regions, and heterogeneously distributed regionally and locally. Processes and end-feet display frequent fast activity, whereas the soma is infrequently active. Results also indicate that astrocytes respond locally to minimal axonal firing with time-correlated Ca<sup>2+</sup> spots.*

Those interested in meeting with the speaker please contact  
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